COMOR-D-48/26

SUBJECT: Satellite Programming Procedures

REFERENCE: [redacted]63 Letter Same Subject from Chief, Special Activities Office, DIA
25X1A

1. Each time a picture is taken the problem of exposure must be considered. This is more complex for satellite photography than for manned aerial reconnaissance. Many factors are involved, e.g. camera, film, environment, collection vehicle, launch time, and last but not least the desired information to be obtained. Some of these are controllable, others noncontrollable and a few unpredictable. However, when all of these factors are weighed, there is often little latitude for choice in selecting the exposure settings for a given mission.

2. Sun angle is noncontrollable and dependent upon many other factors, such as time of day and year, orbital characteristics, and location of the target. Sun angle varies throughout a pass, between passes and on different days, thus the objective of the whole mission must be considered in weighing the effect of sun angle and its influence in determining the particular camera settings for a mission. On occasion, under favorable conditions, informative photography has been obtained with a sun angle below 7 degrees, but on other occasions insufficient illumination has been encountered with a sun angle greater than 7 degrees.

3. Approximately 55 percent of every mission is affected by clouds. At low sun angles cloud shadows may extend up to 50 miles or more, therefore, there must be sufficient exposure to obtain detail in these shadow areas. Experience has proven that considerable information may be gleaned from that portion of photography in cloud shadow.

4. In evaluating the results and accomplishments of successful missions of CORONA-MURAL program with SO 132 emulsion the National Photographic Interpretation Center (NPIC) has answered queries of those responsible for the planning and

execution of satellite missions that seven degrees sun angle is a general minimum below which the available illumination is insufficient for achieving the photography necessary for interpretation. This minimum sun angle was arrived at after extensive study by NPIC in conjunction with experts engaged in the design of the system as well as those processing the film. It has never been stated that seven degrees is a fixed minimum below which photography cannot be obtained. If there is reason to acquire photography in areas where the sun angle is less than seven degrees, an attempt should be made to obtain such photography, realizing the results may not be optimum.

5. As other collection programs become operable their characteristics may be such that a different minimum sun angle could be supported as the basis for proper exposure. This minimum may be lesser or greater than the 7 degrees selected for the CORONA-MURAL system. Only by experience will NPIC be able to determine the minimum sun angle required for each system.

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18, 19--Asst/OPS(NPIC)
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